



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/616,437
Filed: July 9, 2003
Inventor(s):
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Hobbs, and Mahesh P. Saptarshi

Title: Migrating Virtual Machines
Among Computer Systems
to Balance Load Caused by
Virtual Machines

§ Examiner: Truong, Camquy
§ Group/Art Unit: 2195
§ Atty. Dkt. No: 5760-12200/VRTS
§ 0375

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

Lawrence J. Merkel

Printed Name

1/9/05

Date

PRE-APPEAL BRIEF REQUEST FOR REVIEW

ATTN: Mailstop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. Independent claims 1, 14, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over alleged Applicants Admitted Prior Art (AAPA) in view of Saito et al., U.S. Patent No. 6,578,064 ("Saito"). Applicants set forth the clear errors in the rejections below. Please note that for brevity, only the primary arguments directed mainly to the independent claims are presented, and that additional arguments, e.g., directed to the subject matter of the dependent claims, will be presented if and when the case proceeds to Appeal.

Applicant respectfully submits that each of independent claims 1, 14, and 23 recites a combination of features not taught or suggested in the cited art. For example, claim 1 recites a combination of features including: "detects that a first load of a first computer system of the plurality of computer systems exceeds a second load of a second computer system of the plurality of computer systems and migrates at least a first virtual machine executing on the first computer

system to the second computer system responsive to detecting that the first load exceeds the second load".

The Office Action alleges that the AAPA teaches "migrates at least a first virtual machine executing on the first computer system to the second computer system" at page 1, lines 17-21.

However, that passage states "Virtual machines may also be used to provide high availability. If a given computer system fails, tasks that were executing in virtual machines on that computer system may be transferred ("failed over") to similar virtual machines on other computer systems.

Moreover, the entire virtual machine may be failed over to another computer system."

Accordingly, the AAPA describes transferring virtual machines away from a computer system **when that computer system fails**. Since the system has failed, **it is not possible that a failover** is "**responsive to detecting that the first load exceeds the second load**". In fact, since the computer system has failed, there is essentially no load at all on that computer system. The failover is responsive to the failure of the computer system, not the load on the computer system.

The teachings of Saito cannot be used to overcome this deficiency in the teachings of the AAPA. To do so would change the principle of operation of the AAPA from a high availability system that recovers from the failure of a computer system to a load balancing system. Nothing in Saito teaches or suggests use in a high availability system. In essence, by teaching the detection of failure in a computer system and failing over to another system responsive to the failure, the AAPA teaches away from the alleged combination since no load can be measured when a failure has occurred. Furthermore, load balancing according to the teachings of Saito may even interfere with the high availability of operation of the AAPA. For example, if the load balancing operation does not leave enough available resources on one system to fail over another system, the AAPA high availability operation is defeated.

For at least the above stated reasons, Applicants submit that the rejection of claim 1 is unsubstantiated in the art, and the rejection should be withdrawn. Claims 2-13 depend from claim 1, and thus the rejection of these claims is not substantiated in the art and should be withdrawn as well for at least the above stated reasons. Each of claims 2-13 recites additional combinations of features not taught or suggested in the cited art. Since the rejection of claim 1 is not substantiated, it is not necessary to further highlight such additional combinations of features at this time, but Applicants reserve the right to do so.

Claim 14 recites a combination of features including: "the first computer system detecting that the first computer system has a first load that exceeds a second load of a second computer system of the plurality of computer systems; and the first computer system migrating at least a first virtual machine executing on the first computer system to a second computer system of the plurality of computer systems responsive to the detecting". The same teachings of the AAPA and Saito highlighted above with regard to claim 1 are alleged to teach the above highlighted features of claim 14. Applicants respectfully submit that the AAPA and Saito do not teach or suggest the above highlighted features, either.

Furthermore, claim 14 recites "the first computer system detecting that the first computer system has a first load that exceeds a second load of a second computer system...and the first computer system migrating at least a first virtual machine ... responsive to the detecting". Clearly, the first computer system in AAPA cannot perform the above since, under the AAPA, the first computer system has failed to trigger the fail over.

For at least the above stated reasons, Applicants submit that the rejection of claim 14 is unsubstantiated in the art, and the rejection should be withdrawn. Claims 15-22 depend from claim 14, and thus the rejection of these claims is not substantiated in the art and should be withdrawn as well for at least the above stated reasons. Each of claims 15-22 recites additional combinations of features not taught or suggested in the cited art. Since the rejection of claim 14 is not substantiated, it is not necessary to further highlight such additional combinations of features at this time, but Applicants reserve the right to do so.

Claim 23 recites a combination of features including: "select a first virtual machine ... responsive to a first load of the first computer system exceeding a second load of a second computer system of a plurality of computer systems including the first computer system; and migrate the first virtual machine to the second computer system to be executed on the second computer system". The same teachings of the AAPA and Saito highlighted above with regard to claim 1 are alleged to teach the above highlighted features of claim 23. Applicants respectfully submit that the AAPA and Saito do not teach or suggest the above highlighted features, either.

For at least the above stated reasons, Applicants submit that the rejection of claim 23 is unsubstantiated in the art, and the rejection should be withdrawn. Claims 24-33 depend from claim 23, and thus the rejection of these claims is not substantiated in the art and should be withdrawn as well for at least the above stated reasons. Each of claims 24-33 recites additional

combinations of features not taught or suggested in the cited art. Since the rejection of claim 23 is not substantiated, it is not necessary to further highlight such additional combinations of features at this time, but Applicants reserve the right to do so.

For at least the above stated reasons, Applicant submits that the application is in condition for allowance, and a Notice thereof is respectfully requested. If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5760-12200/LJM. Also enclosed herewith are the following items:

- Return Receipt Postcard
- Notice of Appeal

Respectfully submitted,



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AGENT FOR APPLICANT(S)

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